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10/069,196	07/02/2002	Wolfgang Bodenschatz	P/63011-PCT	1607
156	7590	06/30/2006	EXAMINER	
KIRSCHSTEIN, OTTINGER, ISRAEL & SCHIFFMILLER, P.C. 489 FIFTH AVENUE NEW YORK, NY 10017			PHILPOTT, JUSTIN M	
			ART UNIT	PAPER NUMBER
			2616	

DATE MAILED: 06/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/069,196

Applicant(s)

BODENSCHATZ, WOLFGANG

Examiner

Justin M. Philpott

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 17 December 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 6-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 6, 7 and 9 is/are rejected.
- 7) ☒ Claim(s) 8 and 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
  - 2) ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 20020702.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Drawings***

1. Currently there are no drawings in the application file. However, the subject matter of this application admits of illustration by a drawing to facilitate understanding of the invention (e.g., the specification refers to Figures 1 and 2 which have not been provided). Applicant is required to furnish a drawing under 37 CFR 1.81(c). No new matter may be introduced in the required drawing. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d).

### ***Claim Objections***

2. Claim 6-10 are objected to because of the following informalities:

Regarding claim 6, the phrase "so that its output signal" (line 6) is objected to because it is unclear whether "its" is referring to either "each subscriber station" (line 5) or "demodulator" (line 6). Clarification is required.

Regarding claim 6, it appears that "in the subscriber station" (lines 7-8) and "of the subscriber station" (lines 12-13) should be changed to "in each subscriber station" to clarify that the calculating and setting steps do not occur in only a single subscriber station (because the first setting step in step a) refers to "in each subscriber station").

Regarding claim 6, the phrase "all converter reference frequencies stipulated in the subscriber station and in the base station under a condition that ..." (lines 9-10) is objected to

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because it appears to imply a step may occur that is not previously recited in the method claim and, therefore, the description detailing the non-occurring step does not further limit the claim because the claim does not positively recite that the step occurs. It is suggested that a separate step of “stipulating converter reference frequencies ...” should be positively recited in the method claim in order for the step to be given patentable weight.

Regarding claim 6, the phrase “setting the reference frequency for the modulator of the subscriber station at a calculated value of the reference frequency for the modulator” (lines 12-13) is objected to because the language appears to be circular and non-limiting. That is, the phrase appears to recite that a reference frequency for a modulator is set at a calculated value of the reference frequency for the modulator. If the modulator already has a calculated value, “setting” the modulator at the calculated value would appear not to involve any change since it is being “set” with a value that is already set as the current value. A suggested amendment to this phrase would be, “setting the reference frequency for the modulator in the subscriber station to the reference frequency calculated in step b”. Appropriate correction is required.

Regarding claim 6, the phrase “the modulator of the base station” (line 11) is objected to because the previous claim language recites only a modulator in a subscriber station; thus, reference to a new modulator should not be preceded by “the” or clarification is required as to how the same modulator is in both a subscriber station and a base station. Appropriate correction is required.

Regarding claim 7, the phrase “a sum of the reference frequencies for the modulators, demodulators, and intermediate frequency converters in the base station and in the subscriber station is set at zero” (lines 3-4) is objected to for multiple reasons. First, previous claim

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language only recites a single “modulator” and “demodulator”; thus, it is unclear whether a plurality of “modulators” and “demodulators” is intended to be included or, rather, the recitation intends to refer to the single modulator and demodulator previously recited in claim 6. Second, previous claim language recites the modulator and demodulator are in the subscriber station, not the base station; thus, it is unclear what “modulators, demodulators, ... in the base station” is referring to since the previous claim language does not appear to indicate that modulators and demodulators are definitively included in a base station. Appropriate correction is required.

Regarding claim 7, the phrase “the reference frequencies in both the base station and the subscriber station for the radio frequency converters being equal in receiving and transmitting branches, but of opposite phase” (lines 4-6) is objected to for multiple reasons. First, it is unclear what “being equal in receiving and transmitting branches” means. Specifically, it is unclear whether the reference frequencies have the same receiving and transmitting branch, or have receiving and transmitting branches comprise some sort of characteristic having the same value. Clarification is required. Second, while it is understood that a frequency (generally, defined as the number of periods, or specified fractions of periods, per unit time; e.g., a cycle per second/Hz) of one signal may be equal to a frequency of another signal, it is unclear how a “frequency” can have an “opposite phase” of another frequency since it is a *signal* that has the characteristics of frequency and phase and *not a frequency* having the particular phase. Accordingly, it would appear that the claim should be amended to recite reference *signals* that have equal frequencies and opposite phases. Appropriate correction or clarification is required.

Regarding claim 8, the phrase “the reference frequencies in the base station and in each subscriber station for frequency conversion in the modulators, demodulators” (lines 1-2) is

objected to for multiple reasons. First, the previous claim language recites a reference frequency in each subscriber station, *not* reference frequencies in a base station; thus, it is unclear a) what “the reference frequencies in the base station” refers to and b) what are “the reference frequencies” in such a base station. Second, the previous claim language recites a demodulator in each subscriber station and a modulator presumably also in each subscriber station, *not* each subscriber station having a plurality of “modulators [ and] demodulators”; thus “in each subscriber station ... modulators, demodulators” should be amended to recite “in each subscriber station ... modulator, demodulator”. Appropriate correction is required.

Regarding claim 9, the phrase “the receiving and transmitting branch” (line 5 and line 8) is unclear because the previous claim language recites “receiving and transmitting branches” (claim 7, line 6) which implies there are a plurality of receiving and transmitting branches and thus, in claim 9 it is unclear to which single receiving and transmitting branch reference is being made.

Regarding claim 9, “base ation” (line 9) should be corrected to recite “base station”.

Regarding claim 10, this claim is objected to for its dependence upon objected claims 6, 8 and 9 and is therefore objected to for the same reasons discussed above regarding claims 6, 8 and 9.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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4. Claims 7 and 9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Specifically, claim 7 recites the limitation “the ..., and intermediate frequency converters” (lines 3-4). There is insufficient antecedent basis for this limitation in the claim. Applicant may overcome this rejection by amending the above-limitation to “the ..., and one or more intermediate frequency converters”.

Additionally, claim 7 recites “the radio frequency converters” (line 5). There is insufficient antecedent basis for this limitation in the claim. Applicant may overcome this rejection by amending the above limitation to “the intermediate frequency converters”.

Finally, claim 9 recites the limitation “the intermediate frequency conversion factors” (line 7). There is insufficient antecedent basis for this limitation in the claim because the previous claim language does not recite any “intermediate frequency conversion factors”. Applicant may overcome this rejection by amending the above limitation to “the corresponding conversion factors” (which is first recited in claim 8 at line 4).

### ***Claim Rejections - 35 USC § 102***

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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6. Claim 6 is rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,287,388 to Ogura et al.

Regarding claim 6, Ogura teaches a method of correcting frequency offset in a receiver of a base station of a data transmission in which the base station sends data in time multiplex to several subscriber stations, and in which data transfer occurs from the subscriber stations to the base station in time multiplex with multiple access (e.g., see col. 8, lines 41-46 regarding TDM and TDMA), comprising the steps of: a) setting, in each subscriber station (e.g., see col. 23, lines 17-25 regarding the operations being performed with a mobile station), a reference frequency (e.g., see col. 7, line 45 – col. 8, line 59 regarding “carrier frequency of the received signal) of a demodulator (e.g., see col. 10, lines 22-45 regarding the signal provided to a “demodul[.]ator”) so that its output has no carrier frequency portion (e.g., see col. 10, lines 22-45 regarding “the frequency offset ... has been removed”, and see col. 7, lines 62-65 regarding the signal provided is “a base-band signal” which inherently does not have a carrier frequency portion) , b) calculating a reference frequency for a modulator (e.g., see col. 7, line 45 – col. 8, line 59 regarding calculating an “oscillating signal frequency”) in the subscriber station from the reference frequency (e.g., carrier frequency) set for the demodulator (e.g., see col. 10, lines 22-45 regarding the signal provided to a “demodul[.]ator”) in the corresponding subscriber station (e.g., see col. 23, lines 17-25 regarding the operations being performed with a mobile station) and from all converter reference frequencies stipulated in the subscriber station and in the base station under a condition that a carrier frequency, representing the frequency offset occurring in an output signal of a modulator of the base station, is set to zero (e.g., see col. 10, lines 22-45 regarding “the frequency offset ... has been removed”; see also col. 7, line 51 – col. 10, line 45



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describing the “frequency-offset removal apparatus”), and c) setting the reference frequency for the modulator of the subscriber station at a calculated value of the reference frequency for the modulator (e.g., see col. 8, lines 28-40 regarding “a memory 109 for storing the frequency ... of the matched signal . . . after completing the adjusting operation in the frequency adjusting circuit 110 and the selecting operation in the comparator/selector 108”).

***Allowable Subject Matter***

7. Claims 7 and 9 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

8. Claims 8 and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

9. The following is a statement of reasons for the indication of allowable subject matter:

Claim 7 recites calculating a reference frequency for a modulator of a subscriber station from a condition that a sum of the reference frequencies for a plurality of modulators, demodulators, and intermediate frequency converters in a base station and the subscriber station for radio frequency converters being equal in receiving and transmitting branches but of opposite phase, within the method steps of claim 6, which was not found in a search of related prior art, and therefore comprises allowable subject matter.

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Claim 8 recites reference frequencies in a base station and in each of a plurality of subscriber stations for frequency conversion in a plurality of modulators, demodulators, and for one or more intermediate frequency converters are formed by a first local oscillator by multiplying a first local oscillator frequency by corresponding conversion factors, and wherein the reference frequencies for radio frequency converters are generated by a second local oscillator by multiplying a second oscillator frequency by corresponding conversion factors, within the method steps of claim 6, which was not found in a search of related prior art, and therefore comprises allowable subject matter.

Claims 9 and 10 depend upon claim 8 and therefore comprise allowable subject matter for the same reasons discussed above regarding claim 8.

### ***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patent No. 5,970,102 to Hwang, and U.S. Patent No. 6,266,361 to Huang et al. each disclose methods of correcting frequency offset.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Justin M. Philpott whose telephone number is 571.272.3162. The examiner can normally be reached on M-F, 9:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chi Pham can be reached on 571.272.3179. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Justin M. Philpott